A Bibliography on the Theory and Research on Household Expenditures

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A BIBLIOGRAPHY ON THE THEORY AND RESEARCH ON HOUSEHOLD EXPENDITURES. By Hans P. Peterson and Ruben C. Buse. Economic Research Service, U.S. Department of Agriculture, in cooperation with The College of Agricultural and Life Sciences, University of Wisconsin. Agricultural Economic Research Report No. 293.

ABSTRACT

Designed as an aid in researching household expenditures, this annotated bibliography contains features which permit quickly locating particular studies. The features include a numbering system for the annotations which date a particular citation relative to other entries, a keyword index, a commodity index, an author index, an index of data sources, and a one-paragraph synopsis which is frequently cross referenced to other relevant articles in the bibliography. In addition, the bibliography contains all of the biographical information normally contained in similar works.

KEYWORDS: Bibliography; Consumer expenditures; Consumption.

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A Bibliography on the Theory and Research on Household Expenditures

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INTRODUCTION

Designed as an aid in researching household expenditures, this annotated bibliography contains features which permit quickly locating particular studies. The features include a numbering system for the annotations which date a particular citation relative to other entries, a keyword index, a commodity index, an author index, an index of data sources, and a one-paragraph synopsis which is frequently cross referenced to other relevant articles in the bibliography. In addition, the bibliography contains all of the biographical information normally contained in similar works.

The bibliography was developed by the authors as an offshoot of the early stages of applied research on the impact of socioeconomic variables on U.S. consumption expenditures. It is not intended to exhaust the field of literature, but rather to cite the more important studies as well as give a representative sample of the work being done in consumption economics. The bibliography should help the researcher when reviewing the literature before writing a research proposal or initiating a project by providing a number of convenient starting points.

The following paragraphs describe each feature of the bibliography in more detail and present an example of how the researcher can use it to best advantage.

The Numbering System

The entries are numbered by year, and alphabetically by author within years. Thus, the entry 020 was published earlier than entry 060. However, although both 020 and 021 were published in 1952, entry 020 comes before 021 because Fisher is alphabetically before Friedman. The advantage to such a system is that a researcher quickly locates the references which trace the development of a concept or tool through the literature by referring only to the numbering of the entries. Or, if a user is looking for elasticity estimates of a particular commodity, he can

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immediately find the source with the most recent estimates as well as the time ordering of other citations which estimate that particular elasticity. Hence, he can quickly determine if and when the elasticity estimates changed over time.

Keyword Index

The keyword index classifies each entry according to its major emphasis or goals. There are 16 keywords in the index. The criteria used to classify works under each keyword is included with the listing of the citation numbers. For example, the keyword "functional form" has a description followed by 23 entries, the most recent being 116 and the earliest being 004. Each annotated entry also lists the keywords under which it has been referenced. Most entries are classified under several keywords, thus enabling the researcher to locate other similar articles. The classification of any publication is, of course, arbitrary, and the user of the bibliography should be aware of this when using the keyword index.

Commodity Index

The commodity index lists alphabetically 42 commodities which have some form of demand estimates represented by the studies included in this bibliography. Thus, there are 9 entries which estimate demand parameters for fish--the earliest being entry 011, and the most recent, entry 106. The final item in the commodity index--"multiple"--contains the number of those entries which estimate demand parameters for 18 or more commodities. These are usually reports of research on large systems of expenditures and, as a rule, contain most of the commodities listed in the index as well as many others not specifically included. Hence, if one does not find the commodity he is concerned with, he is advised to consider the entries listed under "multiple."

Author Index

The author index is a listing of entry numbers by the authors included in the bibliography. This index facilitates finding all the works by a particular author.

Data Source Index

For as many citations as possible, the data source index lists works by the major source of data they utilized, the period covered by the data, and the size of the sample. This information is useful in ascertaining the various research projects and reports which utilize essentially the same data base.

How to Use the Bibliography

Suppose a researcher wished to undertake a study of the demand for potatoes and the intended data source is the 1965 U.S. Department of Agriculture Survey of Houshold Food Consumption. The user could first turn to potatoes in the commodity index. There he would note that nine different studies contain estimates of demand parameters for potatoes, the most recent being entry 107, published in 1970, and the earliest being 004, published in 1935. The user could then examine the data source index to determine if any of those nine entries used the 1965 U.S. Department of Agriculture Survey of Household Food Consumption. He would

observe that entry 107 does in fact use the 1965 survey. In checking the other annotations, he would quickly discover that entry 059 discusses the impacts on demand parameter estimates of three different functional forms when using time series data, that entry 090 contains estimates of consumption functions using panel data classified according to income levels, and that entry 095 estimates demand parameters using U.S. time series data for 1909-65. If the researcher is interested in how other socioeconomic variables might effect the demand for potatoes, he could turn to the "socioeconomic variables" listing in the keyword index and quickly see if any of the nine studies concerned with estimating the demand for potatoes are listed there. In this example, entries 004, 054, and 107 do indeed deal with this question. Finally, if the researcher refers to those entries listed under "multiple" in the commodity index, he would find entry 064 and hence could locate estimates of cross-price elasticity of potatoes with respect to other food commodities.

Used in this manner, the annotated bibliography can serve as an efficient tool in the early stages of applied research in consumer economics.

Source of Bibliography

The bibliography was compiled under a joint agreement between the Economic Research Service of the U.S. Department of Agriculture and The College of Agricultural and Life Sciences, University of Wisconsin, Madison.

KEYWORD DESCRIPTION AND INDEX

Aggregate Demand: Studies dealing with the demand for a particular commodity or group of commodities by aggregation of all households in the economy, such as national demand.

References: 016, 018, 029, 034, 040, 044, 053, 061, 064, 073, 083, 084, 087, 090, 094, 095, 099, 100, 101, 103, 105, 108, 110, 111, 112, 113.

All Expenditures: Studies treating all expenditure items of a household or economy. That is, studies in which total expenditures equal total income.

References: 002, 003, 011, 030, 033, 038, 057, 058, 060, 062, 072, 079, 106, 108, 114, 117, 118, 119, 120, 121.

Bibliographies: Studies which contain comprehensive listings of references on various topics in consumer economics.

References: 051, 065, 069, 096.

Cross Section: Studies which use data collected from individuals or households at one point in time.

References: 002, 004, 005, 006, 011, 013, 017, 023, 028, 037, 038, 042, 043, 046, 049, 050, 054, 057, 059, 062, 072, 075, 077, 078, 083, 089, 092, 102, 106, 107, 111, 112, 117, 118, 119, 120, 121.

Data Set: References which contain or are limited to a discussion of a particular data source or sources and references which present a large number of data sources.

References: 039, 042, 045, 046, 063, 064, 082, 095.

Durable Expenditures: Studies which discuss durable expenditures as opposed or in addition to other classes or consumer goods such as food, clothing, and recreation.

References: 018, 027, 037, 038, 050, 068, 073, 098.

Econometric Problems: Studies which are concerned with problems of estimation.

References: 008, 010, 014, 016, 021, 023, 024, 025, 026, 029, 032, 034, 035, 047, 055, 056, 058, 059, 060, 062, 066, 071, 075, 078, 079, 083, 085, 086, 087, 088, 091, 094, 100, 101, 108, 110, 116, 119, 120.

Economic Theory: Studies which are primarily concerned with the development or use of economic theory of consumption.

References: 001, 004, 008, 009, 012, 015, 016, 019, 022, 026, 027, 029, 030, 033, 034, 036, 039, 041, 044, 045, 048, 051, 052, 063, 065, 068, 069, 073, 074, 080, 081, 085, 086, 087, 091, 093, 094, 097, 098, 101, 106, 108, 109, 113, 115, 116.

Equivalent Scales: Studies which deal with the specification, estimation, or use of consumption-equivalent scales in estimating or describing household consumption.

References: 002, 003, 005, 006, 007, 011, 013, 021, 023, 024, 028, 031, 039, 049, 058, 074, 089, 096, 102, 106, 111, 119, 120, 121.

Food Expenditures: Studies which discuss food expenditures as opposed or in addition to other types of expenditures.

References: 002, 003, 006, 007, 016, 017, 019, 023, 026, 029, 031, 034, 042, 043, 049, 054, 059, 064, 067, 075, 076, 078, 081, 082, 089, 095, 096, 102, 106, 107, 111, 113, 117, 118.

Functional Form: Studies which discuss the theoretical or statistical implications and the interpretations of specifying different functional forms of utility functions, demand equations, or Engel curves.

References: 004, 005, 008, 023, 025, 030, 033, 035, 058, 059, 060, 061, 066, 072, 080, 086, 087, 088, 092, 100, 101, 107, 116.

Household Demand: Studies dealing with the demand for a particular commodity or group of commodities by individual households within the economy.

References: 002, 003, 004, 005, 006, 011, 013, 023, 029, 031, 034, 039, 043, 049, 054, 058, 072, 076, 089, 102, 107, 111, 114, 117, 118, 119, 120, 121.

Income Elasticity: Studies dealing with specification and estimation of income elasticities of individual or groups of expenditure items.

References: 004, 017, 019, 025, 026, 030, 031, 044, 045, 049, 050, 052, 054, 057, 059, 060, 062, 064, 066, 072, 077, 079, 089, 090, 092, 102, 107, 110, 111, 113, 114, 115, 118, 119, 120.

Socioeconomic Variables: Studies dealing with the effect of variables other than prices, household composition, and income on the consumption of commodities.

References: 004, 005, 009, 010, 013, 017, 020, 024, 027, 036, 037, 038, 039, 040, 041, 042, 046, 049, 050, 053, 054, 056, 057, 067, 068, 070, 077, 082, 088, 092, 093, 099, 102, 104, 105, 107, 112, 113, 114, 115, 118.

Time Series: Studies which use data collected from more than one point in time. Including multiple-period cross-section data sources.

References: 017, 059, 060, 061, 064, 079, 081, 083, 085, 087, 094, 095, 098, 099, 100, 101, 108, 110, 113.

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013 (1937-38, ...640 Budgets)
023 (1949, ...3,561 Households)
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U.S. Bureau of Human Nutrition and House Economics

019 (1948)

U.S. Bureau of Labor Statistics

003 (140 Families)
005 (1935-36)
010 (1942, ... 37 Groups of Urban Families)
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070 (1950, ... 12,500 Urban Families)
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U.S. Bureau of Labor Statistics Survey of Consumer Finances

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046 (1955)
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115 (1960, ... 5,471 Households)

U.S. Department of Agriculture Atlanta Consumer Panel

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088	(1955, ... 4,556 Households)
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114	(1955 and 1965)
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ANNOTATIONS

The annotations are listed and numbered by years and alphabetically by author within years. Each annotation contains the bibliographical data necessary to locate the reference, a keyword classification of the entry, and a cross-referenced one-paragraph synopsis of the study. The number of each annotation is used to locate the reference under the appropriate classifications of the preceding indices.

001 SLUTSKY, E.E. On the Theory of the Budget of the Consumer. In Readings in Price Theory, Chicago, Richard D. Irwin, Inc., 1952.

Keywords: Economic theory.

A pioneering work in consumer economics in which the author derives the stability conditions of consumer demand. Using these conditions, he generates the well-known Slutsky's equation, dividing the effects of a price change on quantity demand into the price and income effects. Utilizing the relative magnitude of these effects, commodities are defined as either necessities (indispensable) or luxuries (dispensable).

002 SYDENSTRICKER, EDWARD, and KING, W.F. The Movement of the Relative Economic Status of Families. Jour. of the Amer. Statis. Assoc., 18:842-857, 1921.

Keywords: Equivalent scales, All expenditures, Food expenditures, Household demand, Cross Section.

An early method of measuring age-sex adult expenditure equivalents on food and on all commodities. The authors use Atwater's A.M.U. (Adult Male Units) and then adjust them for age and sex by fitting lines within groupings of equivalent incomes. They also demonstrate that the A.M.U., a nutritional scale, is an unsatisfactory representation of the expenditure scale. The data base is 1916-17 cross-sectional data from South Carolina villages.

003 OGBURN, W.F. A Device for Measuring the Size of Families, Invented by Edward Sydenstricker and W.I. King. In Methods in Social Science: A Case Book (Ed. S.A. Rice), Univ. of Chicago Press, 1931, pp. 210-219.

Keywords: Equivalent scales, All expenditures, Food expenditures, Household demand.

A detailed analysis of the methodology used by Sydenstricker and King (002) in developing their adult-equivalent scales. Sydenstricker and King are criticized for lack of detail and an insufficient amount of the unexplained variance in their model. The study concludes with a comparison of Sydenstricker and King's scales with one set of nutritional scales developed by Atwater and another set used by the Bureau of Labor Statistics. Sydenstricker and King's scales seem to offer a 10-percent improvement in predicting future consumption.

004 ALLEN, R.G.D., and BOWLEY, A.L. Family Expenditure. P.S. King & Son, London, 1935, 145 pp.

Keywords: Functional form, Socioeconomic variables, Economic theory, Income elasticity, Household demand, Cross section.

An early definitive study concerned with functional forms of Engel curves. The study assumes adult-equivalent scales and attempts to relate the postulates of economic theory to expenditures of households. It deals with income variables and makes international comparisons based on 21 cross-sectional family budgets. The expenditures are grouped as food, rent, clothing, fuel and light, furniture, and other. The food category is subdivided into cereals, meat, dairy products, vegetables, sugar, tea and coffee, and other food.

005 ALLEN, R.G.D. Expenditure Patterns of Families of Differing Types. In Studies in Mathematical Economics and Econometrics, (Eds. Lange, McIntrye, and Yntema), Univ. of Chicago Press, 1942, pp. 190-207.

Keywords: Socioeconomic variables, Equivalent scales, Functional form, Household demand, Cross section.

This work measures the effects of family size on household expenditure by establishing six family types and then estimating graphically a linear Engel curve. The conclusion is that expenditures for personal items are not affected by family size, but all other expenditures are. The article questions the value of adult-equivalent scales in estimating family size effects in this type of linear model. The data used are from a study of consumer purchases in 1935-36 in the urban areas of: Chicago and Columbus, Ohio; Muncie, Ind.; New Castle, Pa.; and Springfield, Ill. The commodities are grouped into categories such as food, housing, transportation, recreation, and miscellaneous savings.

006 ROTHBARTH, E. Note on a Method of Determining Equivalent Income for Families of Different Composition. In Wartime Pattern of Saving and Spending, (Ed., Charles Madge), Cambridge Univ. Press, 1943, pp. 123-130.

Keywords: Equivalent scales, Food expenditures, Household demand, Cross section.

An attempt to measure the cost of a child by calculating the loss in standard of living resulting from the addition of a child to a family. The standard of living is measured by excess income--residual income after expenditures for rent, utilities, state insurance, travel, tax, food, fuel, and clothing. The

results seem to support the assumption that food expenditures for a child are 50 to 65 percent of those for an adult male. The data come from a cross-sectional survey in Leeds, England, in 1942.

007 WOODBURY, R.M. Economic Consumption Scales and Their Uses. Jour. of Amer. Statis. Assoc., 39:455-468, 1944.

Keywords: Equivalent scales, Food expenditures.

Woodbury reviews the status of consumption-scale analysis in the 20 years following Sydenstricker and King's research (002). He compares seven sets of scales for food expenditures, four sets of scales for nonfood items, and four sets of scales for all expenditure items. The comparisons cover a time span beginning in 1895 with Engle's 'quet' scale and conclude with a set of scales estimated by the Heller Committee in 1937. As a result of the comparisons, Woodbury concludes that none of the scales account for the impact of household income differences and that more work needs to be done on scales for all expenditures. He suggests that scales can be used to analyze levels of living and perhaps applied to international comparisons for welfare purposes.

008 SAMUELSON, PAUL A. Some Implications of Linearity. Rev. of Econ. Studies, 15:38-90, 1947.

Keywords: Functional form, Economic theory, Econometric problems.

The article discusses some of the implications of the Klein-Rubin model of the linear expenditure system. The implications are that (1) the consumer always buys a necessary sets of goods and (2) all income "left over" is spent in constant proportions for each commodity. This is a theoretical forerunner of the adding-up criteria.

009 DUSENBERRY, JAMES S. Income, Savings, and the Theory of Consumer Behavior, Harvard Univ. Press, Cambridge, Mass., 1949, 128 pp.

Keywords: Socioeconomic variables, Economic theory.

A respecification of consumer theory based on interdependent preferences and on an irreversible income consumption relationship. This respecification is applied to a theory of savings based upon a "relative income" hypothesis. The author utilizes a reasonable but untestable set of assumptions on the psychological reasons for preferences. The study develops a theorem stating that for any given relative income distribution, the percentage of income saved by a family will tend to be a unique, invariant, and increasing function of its percentile position in the income distribution. The percentage saved will be independent of the absolute level of income. Thus, the aggregate savings ratio will be independent of the absolute level of income. The author also applies these new factors to modifications in the social welfare function and the aggregate demand for new goods.

010 HENDERSON, A.M. The Cost of Children. In Population Studies, 3:130-150, 1949.

Keywords: Econometric problems, Socioeconomic variables.

One of the earlier works dealing with the economic cost of a child to families. Using least squares and cross-sectional data from 1937-40, the article discusses the cost of children to "working-class" and "middle-class" families in Britain. Although the study has problems with high correlations between number of children and level of income, the results show economies of size for most of the four expenditure groups included in the analysis. The theoretical model is described in 013.

011 NICHOLSON, J.L. Variation in Working Class Family Expenditures. Jour. of the Royal Statis. Soc., 117:359-411, 1949.

Keywords: Equivalent scales, All expenditures, Cross section, Household demand.

Primarily a descriptive study, based on the Ministry of Labour's 1937-38 Working-Class Family Budget Survey in Great Britain. To determine the cost of children, a "standard of living" is defined. It is based on standard commodities purchased exclusively for adults and then compared with the difference in total expenditure when zero, one, or two children under 14 years are present in the family. The conclusion is that at the defined level of living, two children cost about 29 percent of the family budget. The amount spent on the first child appears to be more than on the second child, but separate estimates could not be established with any degree of confidence. Furthermore, the conclusion varies with the commodity chosen as a standard. Total expenditures are also divided into commodity groups.

012 HOUTHAKKER, H.S. Revealed Preference and the Utility Function. Economica, 17:159-174, 1950.

Keywords: Economic theory.

The author proves that in consumer theory the strong axiom of revealed preference implies the existence of an ordinal utility function. The proofs utilize indifference curves constructed with the use of the revealed-preference axioms.

013 HENDERSON, A.M. The Cost of a Family. Rev. of Econ. Studies, 17:127-148, 1950.

Keywords: Socioeconomic variables, Equivalent scales, Household demand, Cross section.

Establishes an Engel curve for a standard commodity--one whose consumption is not affected by the presence or absence of children--for families of zero, one, or two children. The difference in income levels when equal quantities of the standard commodity are consumed for each type of family is considered the cost of a family. The standard commodities considered are adult clothing, tobacco, and alcoholic drink. The differences in this "cost" are then compared for 1938 and 1948. Henderson also considers the question of economies in family size. The data are from the budget inquiry by the British Ministry of Labour in 1937 and 1938. Eleven expenditure categories are included in the analysis.

014 QUENOVILLE, M.H. An Application of Least Squares to Family Diet Surveys. Econometrica, 18:27-44, 1950.

Keywords: Econometric problems.

A methodological discussion of applying least-squares estimation to family diet surveys of nutrient intake. It demonstrates an analysis of variance approach which is computationally more efficient than its predecessors but of little interest with the advent of computers and the hard-to-meet assumption of orthoganality in survey data.

015 SAMUELSON, PAUL A. The Problem of Integrability in Utility Theory. Economica, 17:355-385, 1950.

Keywords: Economic theory.

A brief historical summary of the arguments for and against integrability as implied by the strong law of revealed preference. The author presents an eloquent argument in favor of integrability and explains, both mathematically (in the appendix) and nonmathematically, the implications of the existence or nonexistence of integrability.

016 TOBIN, JAMES. A Statistical Demand Function for Food in the U.S.A. Jour. of the Royal Statis. Soc., 113:113, 1950.

Keywords: Economic theory, Food expenditures, Econometric problems, Aggregate demand.

A pioneering study of an important but difficult problem in demand estimation. It estimates an aggregate demand function for food over time by first estimating household demand from cross-sectional data and then aggregating the households to get national demand. Finally, given projected income and prices, the model is used to "predict" national demand. The study requires some rather bold assumptions in order to use the aggregation procedure. The remarks by Stone and Nicholson following the article point out the seriousness of some of these assumptions.

017 BURK, MARGUERITE C. Changes in the Demand for Food from 1941 to 1950. Jour. of Farm Econ., 33(3):281-298, 1951.

Keywords: Income elasticity, Socioeconomic variables, Food expenditures, Cross section, Time series.

Concerned with estimating the income elasticities for food over time by utilizing a combination of time series and cross-sectional data. Burk finds that the apparent changes in income and price elasticities within the period of study are accounted for by the extra purchasing power of the consumer in 1949, a lag in adjusting to rapidly changing prices and income, and the nonavailability of desired durable goods. The study concludes that socioeconomic factors other than income had little effect or offsetting effects on per capita consumption over the 10-year period. The data were obtained from several surveys of the U.S. Departments of Agriculture, Commerce, and Labor.

018 HOUTHAKKER, H.S. Some Calculations on Electricity Consumption in Great Britain. Jour. of the Royal Statis. Soc., 114:359-371, 1951.

Keywords: Aggregate demand, Durable expenditures.

Estimates total demand for electricity in Great Britain by regressing total annual consumption on money income, the marginal price of electricity and gas, and electrical durable good holdings of households. The author uses two functional forms and groups cross-sectional data into regions. The author also attempts to estimate annual trends in demand but has difficulty with this aspect of the analysis.

019 BLACK, GUY. Variations in Prices Paid for Food as Affected by Income Level. Jour. of Farm Econ. 34:52-63, 1952.

Keywords: Economic theory, Food expenditures, Income elasticity.

Groups and ranks families according to income and average price paid for food in 1935-36 and 1948. Although the chi-square test implies that the rankings are the same, the author concludes that as income increases, the average price for food increases. He suggests several reasons for this relationship, the most probable being that a bundle of goods is purchased with food (that is, service, environment, and so forth). The higher price results from wealthier families buying more of the other goods in the bundle.

020 FISHER, JANET. Income, Spending and Saving Patterns of Consumer Units in Different Age Groups. In Studies in Income and Wealth. Natl. Bur. of Econ. Res., New York, Vol. 15, 1952, pp. 77-102.

Keywords: Socioeconomic variables.

A description of family life cycles based on the age of head of household. Fisher uses the age to describe income patterns, income distribution, liquid asset holdings, and consumption and savings of a household across the life of the family. The article concludes that other socioeconomic variables such as occupation, family composition, location, race, and education have definite effects on the family life cycle. The results are based on cross-sectional data from the 1948-49 Bureau of Labor Statistics Survey of Consumer Finances.

021 FRIEDMAN, MILTON. A Method of Comparing Incomes of Families of Differing Compositions. In Studies in Income and Wealth. Natl. Bur. of Econ. Res., New York, Vol. 15, 1952, pp. 9-20.

Keywords: Econometric problems, Equivalent scales.

Develops an alternative to Sydenstricker and King's (002) method of estimating adult-equivalent scales for food expenditures. Friedman's proposal uses a male or female adult as one expenditure unit and treats the age of children as a continuous variable. The order and sex of the children is also considered, but he does not attempt to estimate the scales. The author notes that estimation requires income per adult equivalent for food to be a measure of consumer welfare. This implies that an income scale can be derived from the specific food scales alone. Forsythe (058) argues the contrary.

022 HOUTHAKKER, H.S. Compensated Changes in Quantities and Qualities Consumed. Rev. of Econ. Studies, 19:155-163, 1952.

Keywords: Economic theory.

Presents a reformulation of the theoretical results of minimizing an indirect utility function subject to the utility constraint. The reformulation is used to determine the effects of compensated price changes in classical theory and compensated changes in "quantity prices" and "quality prices" under the model for quality effects presented in the article (see also 026). The conclusions are theoretical.

023 HOUTHAKKER, H.S. The Econometrics of Family Budgets. Jour. of the Royal Statis. Soc., 115:1-21, 1952.

Keywords: Functional form, Econometric problems, Equivalent scales, Household demand, Food expenditures, Cross section.

A preview of Prais and Houthakker's The Analysis of Family Budgets (039). The author argues for unit consumer scales and for a nonlinear functional form to estimate them. The article includes estimated income elasticities for a large list of commodities by 3,500 working- and middle-class British households. Following the article is Champernowne's criticism of Houthakker's functional form and estimating procedure.

024 KEMSLEY, W.F. Estimating Individual Expenditure from Family Totals. Applied Statis., 1:192-201, 1952.

Keywords: Econometric problems, Socioeconomic variables, Adult-equivalent scales.

A comparison of two approaches for estimating individual expenditures from family totals. The first method compares families which are identical except for the presence or absence of one individual. This method is simple but inefficient since it excludes much data. The second method uses least-squares estimation with the independent variable being the number of individuals of a given age and sex in the family. The second method is judged superior.

025 PRAIS, S.J. Non-Linear Estimates of the Engel Curves. Rev. of Econ. Studies, 20:87-104, 1952.

Keywords: Functional form, Income elasticity, Econometric problems.

Four expenditure forms, based on social, theoretical, and practical requirements are used to estimate Engel curves for several food items. The analysis assumes adult-equivalent scales, and both statistical and graphical methods are used to determine the best functional form for each Engel curve. The conclusion is that expressing expenditure per adult equivalent as a function of the log of total expenditure per adult equivalent gives the most satisfactory results. The results are based on data from Dutch and pre-World War II British Surveys on a number of foods for different occupational groups.

026 THEIL, H. Quantities, Prices and Budget Enquiries. Rev. of Econ. Studies, 19:129-147, 1952.

Keywords: Economic theory, Econmetric problems, Food expenditures, Income elasticities.

An attempt to alter classical consumer theory to allow for changes in the qualities as well as the quantities of commodities consumed. Simply the quality is reflected in average price paid for a homogeneous commodity, and price is a function of that quality. This function replaces price in the budget constraint, and the utility becomes a function of the quality as well as quantitiy of the consumed goods. Theil gives an empirical application of his approach which illustrates the differences between his development and classical theory. His data source is the Amsterdam Budget Data Survey for 1934-35. He uses a subset of food expenditures grouped into eight categories.

027 OXENFELD, A. A Dynamic Element in Consumption. In Consumer Behavior: Research on Consumer Reactions, (Ed., L. Clark), Harper Brothers, New York, 1953, pp. 420-443.

Keywords: Socioeconomic variables, Economic theory, Durable expenditures.

A discussion of the demand for TV sets from the viewpoint of an innovative industry. The study concludes that for new products, prices and disposable income are not important factors of demand relative to other factors such as social status, keeping up with the Jones', or escapism. The study also argues that, as an economy develops, innovation adds less to total consumption. The basis of this argument is that innovation has a greater probability of being a substitute for some existing commodity in a developed than in a developing economy.

028 PRAIS, S.J. The Estimation of Equivalent Adult Scales from Family Budgets. The Econ. Jour., Dec. 1953, pp. 791-810.

Keywords: Equivalent scales, Cross section.

Presents a method of determining scales of equivalent adults from an explicit consumption function. Prais assumes a standard of living measured by income per person. He then makes estimates for the specific scale, and uses these estimates to remeasure the income scale which changes the measure of standard of living. He then continues to reestimate the specific scale until some satisfactory set of estimates is obtained. He utilizes a sample of 2,200 family budgets collected in the United Kingdom in 1937-38. The estimates are for six food groups and all food. Prais concludes that unless specific and income effects are separated, biased results will be obtained. He finds that females consume about 15 percent less food than males and that children under school age consume about 50 percent less than adult males. The estimates are for food items only.

029 WOLD, H., and JUREEN, L. Demand Analysis. John Wiley & Sons, New York, 1953, 385 pp.

Keywords: Economic theory, Econometric problems, Food expenditures, Aggregate demand, Household demand, Functional form.

A textbook covering all aspects of demand analysis, including such topics as estimating procedures, family budget surveys, and market demand analysis. Throughout the presentation, Swedish data from pre-World War II is used to demonstrate applications of data to demand theory. Although some of the techniques presented are dated, this is a key work in studying the use of demand theory in empirical applications.

030 AITCHISON, J., and BROWN, J.A.C. A Synthesis of Engel Curve Theory. Rev. of Econ. Studies, 22:35-46, 1954.

Keywords: Functional form, Economic theory, All expenditures, Income elasticities.

Illustrates the advantages of a sigmoid function to estimate Engel curves. More specifically, within the relevant range of income, this functional form allows a commodity to start as a luxury and change to a necessity. The authors use cross-sectional data on 12 groups of commodities which are defined to close out the expenditure system. The data are from the 1938 inquiry into the working class conducted by the British Ministry of Labour.

031 BROWN, J.A.C. The Consumption of Food in Relation to Household Composition and Income. Econometrica, 22:444-460, 1954.

Keywords: Equivalent scales, Income elasticities, Household demand, Food expenditures.

Estimates specific adult-equivalent scales by estimating income elasticities of households of similar composition while assuming the income effect is constant. This method is basically an extension of Prais's method (028). Brown manipulates the double-log form of the Engel function to obtain least-squares estimates of the income elasticities. The results are for expenditures on all food.

032 PRAIS, S.J., and AITCHISON, J. The Grouping of Observations in Regression Analysis. Rev. of Internatl. Statis. Inst., 22:1-22, 1954.

Keywords: Econometric problems.

The authors demonstrate that if the observations in a regression system are grouped on the independent variables and the mean of each group is used as the value of that regressor for each observation, then the resulting ordinary least-squares estimator is unbiased but not of minimum variance. Generally, grouping in this manner gives a higher R^2. The argument is presented in terms of homoskedastic and heteroskedastic systems.

033 STONE, R. Linear Expenditure Systems and Demand Analysis. The Econ. Jour., 64:511-527, 1954.

Keywords: Functional form, Economic theory, All expenditures.

Shows that the Klein-Rubin model (008) is the most general linear expenditure system which meets the three conditions of additivity, homogeneity, and the Slutsky's conditions. The model's parameters are estimated using post-World War II data from Britain for six commodity groups. A consumption pattern for 1900

is predicted and compared with the actual consumption patterns. The Klein-Rubin model proves to be relatively successful. This is primarily a theoretical study of the model used by Stone et. al. in studying British expenditures between 1920 and 1938 (031 and 084).

034 Stone, R., ROWE, W.J., CORLETT, W.J., HURSTFIELD, R., and POTTER, M. The Measurement of Consumers' Expenditure and Behavior in the United Kingdom, 1920-1938. Cambridge Univ. Press, Cambridge, Vol. 1, 1954, 447 pp.

Keywords: Economic theory, Econometric problems, Aggregate demand, Household demand, Food expenditures.

A major work in quantifying consumer expenditure patterns and the first of two volumes (084). Market demand for a large number of commodity groups is estimated from both time series and cross-sectional data while attempting to account for both household size and social status. A comprehensive review of the economic theory and the statistical estimating procedures used in the study is presented. Throughout the book, the possible sources of errors in the estimates are explicitly described and discussed.

035 WORSWICK, G.D.N., and CHAMPERNOWNE, D.G. A Note on the Adding-Up Criterion. Rev. of Econ. Studies, 22:57-60, 1954.

Keywords: Functional form, Econometric problems.

The authors refute Prais's statement that the adding-up criterion restricts the Engel curve to "...an ascending polynomial functional of income which passes through the origin" (025, pp. 80). By a mathematical proof, the article demonstrates that in general neither of the restrictions are true. For a more general proof of this relationship see Nicholson, 047.

036 FISHER, JANET. Family Life Cycle Analysis in Research on Consumer Behavior. In Consumer Behavior: The Life Cycle and Consumer Behavior, (Ed. L. Clark), Vol. 2, New York Univ. Press, N.Y., 1955, pp. 28-35.

Keywords: Socioeconomic variables, Economic theory.

Discusses the importance of including the effect of the family life cycle in relation to other socioeconomic variables in studying the consumption decisions of households. The age of the household head is used as an index of the family's position in the cycle. The article includes a comparison of 1951-52 household income and savings patterns as related to the age of head of household in the United States and in British families in the same stages of the cycle and across the life cycle.

037 LANSING, J.B., and MORGAN, J.N. Consumer Finances over the Life Cycle. In Consumer Behavior: The Life Cycle and Consumer Behavior, (Ed. L. Clark), Vol. 2, New York Univ. Press, N.Y., 1955, pp. 36-52.

Keywords: Socioeconomic variables, Durable expenditures, Cross section.

Details the expenditure patterns of U.S. spending units in terms of total expenditures, durables, and savings in the early 1950's for various stages of

the family life cycle. The analysis is a tabular presentation of data from the 1953 and 1954 surveys of consumer finances. No Engel curves are estimated.

038 LYDALL, H. The Life Cycle in Income, Savings and Asset Ownership. Econometrica, 23:131-150, 1955.

Keywords: Cross section, All expenditures, Socioeconomic variables, Durable expenditures.

Uses cross-sectional data to estimate the effects of age of head of household (income unit) on income, savings, and asset ownership. The results show that a definite family life cycle exists, and that while each of the variables reaches a maximum and then declines, the age at which the maximums are attained differ, as do their rates of increase and decrease. The article concludes that in estimating relationships involving income, savings, or assets using cross-sectional data, age of the household head should be considered in a nonlinear fashion. The data used are from the 1952 and 1953 surveys of personal incomes and savings of 2,000 to 3,000 private households in Great Britain.

039 PRAIS, S.J., and HOUTHAKKER, H.S. The Analysis of Family Budgets. Cambridge Univ. Press, London, 1955, 372 pp.

Keywords: Socioeconomic variables, Equivalent scales, Economic theory, Data sets, Household demand.

An important work in understanding the state of knowledge in the field of consumer demand. A classic work dealing with two British cross-sectional budget surveys in 1937 and 1939. The study examines all aspects of family budgets including socioeconomic variables affecting consumption, quality variations of consumption and economies of scale in consumption, and the problems of estimating adult-equivalent scales. The study shows that unless the income elasticity is zero, an analysis of consumption and household composition which ignores the effect of income may be expected to yield coefficients which are biased downwards. The book includes estimates of income elasticities under different functional forms. The procedure for estimating adult-equivalent scales has been used and extended by others, most recently for U.S. data by D. W. Price (110).

040 PURCELL, J.C. Prospective Demand for Meat and Livestock in the South. Mktg. Res. Rpt. 99, U.S. Dept. Agr., 1955.

Keywords: Aggregate demand, Socioeconomic variables.

Projects the demand for meat and livestock in the South relative to that of the United States. The study is based on projections of income and population characteristics (race, urbanization, age) and their estimated or assumed relation to meat consumption. This study uses the traditional method of estimating future demands from current knowledge and projected trends.

041 MACK, RUTH P. Trends in American Consumption and the Inspiration to Consume. Amer. Econ. Rev., XLVI:55-83, 1956.

Keywords: Socioeconomic variables, Economic theory.

A unique argument as to the basic causes of the growth of consumption in America. The approach grows out of the author's conception of several unique factors in American civilization which affect consumption. Among them are selective immigration, the power of women, the relatively lower disutility of work, and the materialistic orientation of the American value structure. The article is primarily philosophical in nature.

042 U.S. DEPARTMENT OF AGRICULTURE. Food Consumption in Households in the United States. Household Food Consumption Survey 1955, Report Nos. 1-15, Govt. Printing Off., Washington, D.C., 1956.

Keywords: Data sets, Cross section, Food expenditures, Socioeconomic variables.

A comprehensive tabulation of the data collected by the U.S. Department of Agriculture on food consumption and expenditures in the spring of 1955.

043 COFER, ELOISE. Family Food Budgets, Revised 1957. Family Econ. Rev., U.S. Department of Agriculture, Agr. Res. Serv., Oct. 1957, pp. 1-11.

Keywords: Food expenditures, Cross section, Household demand.

Presents food budgets for families of low ($2,000-$2,999), medium ($4,000-$4,999), and high ($6,000-$7,999) income levels. The budgets are based on minimum nutritional requirements for each household member of a particular age and sex as established by the National Research Council and from eating habits as determined from the 1955 U.S. Department of Agriculture Household Food Survey. Foods are grouped into 11 categories. The prices are the average prices paid by families in each income group adjusted to 1957.

044 FRIEDMAN, MILTON. A Theory of the Consumption Function. A study by the Natl. Bur. of Econ. Res., New York, Princeton Univ. Press, Princeton, 1957, 243 pp.

Keywords: Income elasticity, Economic theory, Aggregate demand.

An important work in consumption theory, it presents and develops the "permanent income hypothesis" (PIH) as an alternative to the "relative income hypothesis" (RIH) and the "absolute income hypothesis" (AIH). Friedman discusses the PIH in relation to empirical results from cross-sectional and time series studies but provides no statistical analysis or tests of the hypothesis. The book concludes with a discussion of the PIH in relation to the RIH and some possible implications of the PIH for further research.

045 HOUTHAKKER, H.S. An International Comparison of Household Expenditure Patterns Commemorating the Centenary of Engel's Law. Econometrica, 25:532-551, 1957.

Keywords: Economic theory, Income elasticity, Cross section, Data set.

A comparison of elasticities for food, clothing, housing, and miscellaneous items with respect to total expenditures and family size. The elasticities are derived from a regression analysis of 47 surveys in 83 different countries using

the double-log expenditure system. The elasticities are found to be similar but not equal. Houthakker concludes that Engel's law is confirmed by all surveys and references the source of each of the surveys.

046 LANSING, J.B., and KISH, LESLIE. Family Life Cycle as An Independent Variable. Amer. Sociol. Rev., 22:512-519, 1957.

Keywords: Socioeconomic variables, Data sets, Cross section.

Compares the use of age of household head and family life cycle (FLC) as independent variables to explain (1) home ownership, (2) debts, (3) working wife, (4) income over $4,000, (5) new car purchases, and (6) TV set purchases. In all cases, but particularly in the working wife (3), the FLC variable proved to be superior to age as measured by the increase in variation explained by FLC. The data comes from the 1955 Survey of Consumer Finance.

047 NICHOLSON, J.L. The General Form of the Adding-Up Criteria. Jour. of the Royal Statis. Soc., 120:84-85, 1957.

Keywords: Econometric problems.

Proves that when the estimating criteria is least squares, the adding-up theorem of expenditure places restrictions on the estimated coefficients regardless of the functional form of the expenditure equations. Specifically, the constant terms sum to one, and the other coefficients of the independent variables sum to zero. The theory is relevant for all regression equations applied to two or more subdivisions of a given total as well as to Engel curves.

048 STROTZ, R.H. The Empirical Implications of a Utility Tree. Econometrica, 25:269-280, 1957.

Keywords: Economic theory.

Deals with the theoretical results of assuming a utility tree. It is especially concerned with the implication for the price coefficients of the demand functions. A method is presented to measure the cost of each branch of the tree by a price index formula. Finally, a defense for the reasonableness of assuming a utility tree is presented by describing how a consumer allocates his income.

049 STUVEL, G., and JAMES, S.F. Household Expenditures of Food in Holland. Jour. of the Royal Statis. Soc., 113:59-80, 1957.

Keywords: Socioeconomic variables, Food expenditures, Income elasticity, Cross section, Household demand, Equivalent scale.

Measures the effect of income, occupation of head of household, household size, and location of household on total food expenditures. The study, using cross-sectional data from Holland in 1935-36, regresses food expenditures on income and household size after grouping observations as to location and occupation. The household size variable is determined partially by a calculated adult consumer scale developed in 1917. The authors estimate a linear equation for middle income levels and a log-linear equation for lower income levels. The results show that location is not a relevant variable but that occupation is and that farmers tend to have a higher and more constant income elasticity than city dwellers.

050 DERNBURG, THOMAS F. Consumer Response to Innovation: Television. In Studies in Household Economic Behavior, Yale Univ. Press, New Haven, 1958, pp. 1-49.

Keywords: Socioeconomic variables, Income elasticity, Durable goods, Cross-section.

Relates the expenditure of households for television sets in 1950 to income, education, size of household, location of household, and number and length of existence of television stations in the area. The study concludes that television sets are inferior goods with respect to income and education. Length of existence of TV stations had a positive effect on consumption, but number of stations was of less importance. Presence of housewives and adults between 14 and 64 years of age also had a positive influence on consumption. Nonwhites were less inclined to consume than whites, and suburbanites more inclined than urbanites. The data are from the 1950 census tracts consisting of 3,000 observations from 38 cities.

051 MORGAN, J.N. A Review of Recent Research on Consumer Behavior. Consumer Behavior: Research on Consumer Reactions (Ed., L. Clark), Harper Brothers, New York, 1958, pp. 193-219.

Keywords: Economic theory, Bibliography.

A survey of consumer behavior research from World War II to 1956. Contains a comprehensive bibliography of over 950 entries of research on consumer behavior.

052 FRISCH, RAGNAR. A Complete Scheme for Computing all Direct and Cross-Demand Elasticities in a Model with Many Sectors. Econometrica, 27:177-196, 1959.

Keywords: Economic theory, Income elasticity.

Assuming want independence and using relationships derived from classical theory, estimates a complete set of demand elasticities from budget proportions and income elasticities. Frisch investigates how far one can go in drawing conclusions about price elasticities from budget proportions and income elasticities. The crucial assumption of additivity makes the result very sensitive to commodity groupings. Also, the results are not invariant across monotonic transformations, but Frisch presents an eloquent defense against this defect.

053 PURCELL, J.C. Prospective Demand for Milk and Milk Products in the South. South. Coop. Ser. Bul., Vol. 68, 1959.

Keywords: Aggregate demand, Socioeconomic variables.

Projects the demand for milk and milk products in the South to 1975. The study estimates per capita consumption in 1955 as a function of income, price, urbanization, and race. He projects the values of these regressors to 1975, assuming prices, tastes, and per capita consumption remain constant over the period. The data were generated by a consumer panel in Atlanta, Ga., and the 1955 U.S. Department of Agriculture Household Food Consumption Survey.

054 ROCKWELL, G.R., JR. Income and Household Size: Their Effects on Food Consumption. Agr. Mktg. Res. Rpt. 340, U.S. Dept. Agr., 1959.

Keywords: Socioeconomic variables, Income elasticity, Food expenditures, Household demand, Cross section.

Estimates and compares the effects of income and household size on food consumption for both farm and nonfarm families. Rockwell uses income elasticities to make the comparisons. Using data from the 1955 U.S. Department of Agriculture Household Food Consumption Survey, the study determines family size from the number of meals served at home divided by 21. The results, presented for individual food commodities, show differences between farm and nonfarm families although both groups obey Engel's law and most display economies of size. The author concludes that household size as measured in this model is not a statistically significant variable in explaining expenditure on particular commodities.

055 SUMMERS, Robert, A Note on Least Squares Bias in Household Expenditure Analysis. Econometrica, 27:121-126, 1959.

Keywords: Econometric problems.

Shows that Prais and Houthakker's method of analysis (039) is the same as an equation-by-equation estimation of a system of simultaneous equations and that the resulting bias is a function of more than just the relative share of expenditure. Prias, in a comment following the article, shows that this particular bias is of little importance given the possible biases resulting from other problems confronting the researchers in that analysis.

056 CROCKETT, JEAN. Biases in Estimating Income-Expenditure Regressions from Cross-Sectional Data. In Consumption and Savings, Vol. 2, Univ. of Penn., Philadelphia, 1960, pp. 213-222.

Keywords: Socioeconomic variables, Econometric problems.

Shows that under the permanent income hypothesis, when the family characteristics are correlated with income, biased estimates may result from regressing consumption on income and family characteristics in cross-sectional data. The size and sign of the bias depends on the relationships between permanent income, transitory income, the family characteristic, and the particular commodity under consideration.

057 CROCKETT, JEAN, and FRIEND, IRWIN. A Complete Set of Consumer Demand Relationships. In Consumption and Savings, Vol. 1, Univ. of Penn., Philadelphia, 1960, pp. 1-92.

Keywords: Socioeconomic variables, All expenditures, Income elasticity, Cross section.

Using the 1950 Bureau of Labor Statistics Survey of Consumer Expenditures, measures the effects of income on consumption while holding other family characteristics constant. Also, the authors try to determine the influence of these other family characteristics on income for households with incomes between $1,000 and $10,000. The conclusions were that family size was the most important

characteristic affecting consumption, and age of household head was the second most important characteristic. Home ownership did not affect total consumption but did affect income allocation among consumption items. The other family characteristics were not statistically significant.

058 FORSYTHE, F.G. The Relationship between Family Size and Family Expenditure. Jour. of the Royal Statis. Soc., 128:367-393, 1960.

Keywords: Econometric problems, Equivalent scales, Household demand, All expenditures, Functional form.

Demonstrates the impossibility of estimating both the income and specific scales in Prais and Houthakker's model (039). Forsythe concludes that since there are more parameters than equations, the research must make some assumption with regard to the income scale. The article presents Engel curve estimates for 12 broad commodity groupings under four different functional forms from the United Kingdom 1934-35 Household Expenditure Survey. Prais' comment in the Royal Statistical Society Journal Series A, Volume 124, pp: 542, and Barten's comments (074, pp. 284) give additional insights into Forsythe's conclusion.

059 GOREUX, L.M. Income and Food Consumption. Bul. of Agr. Econ. and Statis., Food and Agr. Organ., 9(10):13, 1960.

Keywords: Functional form, Income elasticity, Econometric problems, Food expenditures, Cross section, Time series.

Estimates and compares three different consumption functions for food in countries with different per capita incomes. The data include both household surveys and time series. The consumption functions are written with per capita consumption as a function of per capita total expenditure. The results show the effect on the estimated income elasticity of both the choice of functional form and the type of data used. The article concludes with a discussion of applications of the results for demand projections.

060 HOUTHAKKER, H.S. The Influence of Prices and Incomes on Household Expenditures. Bul. of the Internatl. Inst. of Statis., 37:1-16, 1960.

Keywords: Income elasticity, Functional form, Econometric problems, All expenditures, Time series.

Develops the demand equation system derivable from the indirect addilog utility function. The author uses four criteria: (1) goodness of fit, (2) computational simplicity, (3) additivity, and (4) theoretical plausibility. The empirical validity of the system was tested, and the results were inconclusive. However, the estimation procedure has some shortcomings which have since been resolved by Parks (100). The author's empirical results are based upon four groups of commodities which account for total expenditure.

061 HOUTHAKKER, H.S. Additive Preferences. Econometrica, 28:244-257, 1960.

Keywords: Functional form, Aggregate demand, Time series.

Explores the theoretical implications of assuming additivity in both the direct and indirect utility functions. Houthakker compares the reasonableness of the results of assuming direct and indirect addilog utility functions under least-squares estimation procedures. He also estimates Engel curves for three countries and six broad commodity groupings. The article concludes that direct additivity gives more reasonable results.

062 IYENGAR, N.S. On a Method of Computing Engel Elasticities from Concentration Curves. Econometrica, 28:882-891, 1960.

Keywords: Income elasticity, Econometric problems, Cross section, All expenditures.

Describes a method of obtaining Engel elasticities graphically for a specific item. The method requires a bivariant log-normal distribution of total expenditures and per capita expenditures for the specific item. The procedure uses Lorenz curves and the specific concentration curve for each commodity. A concentration curve relates the percentage of total consumption of a specific commodity to the proportion of persons spending up to a given level of total expenditure per capita. The procedure is applicable only with symmetric concentration curves.

063 BURK, MARGUERITE C. Influences of Economic and Social Factors on U.S. Food Consumption. Burgess Publishing Co., Minneapolis, 1961, 135 pp.

Keywords: Data sets, Economic theory.

A survey of the different procedures used by the U.S. Government agencies to analyze U.S. food consumption. A good source of background information on U.S. consumption surveys. It includes the definitions of the measures used and a comparison of the changes in these definitions over time. It describes general time series and cross-sectional surveys carried out by the U.S. Government and compares the procedures used in each survey.

064 BRANDOW, G.E. Interrelations Among Demand for Farm Products and Implications for Control of Market Supply. Bul. 680, Penn. State Univ., Univ. Park, 1961, 124 pp.

Keywords: Aggregate demand, Food expenditures, Time series, Data set, Income elasticity.

Employs the theoretical procedures developed by Wold and Jureen (029) and Frisch (052) to formulate a consistent economic model to estimate all price, cross-price, and income elasticities for all food commodities. The model applies to the retail and farm gate markets. The author also discusses the implications of his estimates for farm policy.

065 HOUTHAKKER, H.S. The Present State of Consumption Theory. Econometrica, 29:704-740, 1961.

Keywords: Economic theory, Bibliography.

A survey article on the recent developments of the theory of consumer's choice. It includes discussions on classical utility theory, dynamic theory, and the problems encountered in aggregating microdata to explain macrophenomena.

066 LIVIATAN, NISSAN. Errors in Variables and Engel Curve Analysis. Econometrica, 29:336-362, 1961.

Keywords: Functional form, Econometric problems, Income elasticity.

Shows that a bias exists when estimating Engel curves with total expenditures or recorded income as an independent variable. The bias can be avoided with the use of an instrumental variable employing both total expenditure and income. Although the results are not conclusive, the bias seems significantly positive for durables and negative for other commodities. The author investigates the bias empirically by estimating Engel curves for large expenditure groupings such as total food and clothing, with data from a 1956-57 study on income distribution in Israel.

067 BURK, MARGUERITE C. Ramifications of the Relationship Between Income and Food. Jour. of Farm Econ., 44:115-125, 1962.

Keywords: Socioeconomic variables, Food expenditures.

Traces the interpretations and applications of Engel's law from 1857 to 1955. The author stresses the importance of other socioeconomic variables acting upon the consumption of food in contemporary times. She concludes that more work should be done on Engel's law, taking into account the effect of the definition of food, temporal specification, socioeconomic variables, and changes in the income elasticity.

068 DAVID, MARTIN. Family Composition and Consumption. North Holland Publishing Co., Amsterdam, 1962, 109 pp.

Keywords: Socioeconomic variables, Economic theory, Durable expenditures.

Utilizes cross-sectional data in the 1955-56 Bureau of Labor Statistics Survey of Consumer Finances to determine the relationships of expenditures for a number of durables, housing, and automobiles to household size, family life cycle, prices, and disposable income. The author assumes that households rather than individuals are the proper basis of consumer theory. The results indicate that the relationships vary from commodity to commodity. The study concludes that there is a definite need to include household size and family life cycle in a more general theory of consumer behavior based on households rather than on individuals.

069 FERBER, ROBERT. Research on Household Behavior. Amer. Econ. Rev., 52:19-63, 1962.

Keywords: Economic theory, Bibliography.

A survey article of research on household behavior between World War II and 1962. Contains a list of 170 references.

070 KRAVIS, IRVING B. The Strucutre of Income. Univ. of Penn., Philadelphia, 1962, 317 pp.

Keywords: Socioeconomic variables.

Describes the structure of family income in the United States as related to time, location, race, occupation, age of head, education, sex, family composition, income shares, returns to property, overall distribution, and international comparisons of distributions. The book provides factual data on each of the above characteristics and is based primarily on the 1950 Bureau of Labor Statistics Survey of Urban Consumer Units. The study concludes that some characteristics which tend to be correlated with high levels of income are: northern or western location, suburban residence, white race, self-employment or employment in a professional or managerial capacity, household age between 35 and 54, and education beyond the college level.

071 ZELLNER, A. An Efficient Method of Estimating Seemingly Unrelated Regressions and Tests for Aggregation Bias. Jour. of the Amer. Statis. Assoc., 57:348-368, 1962.

Keywords: Econometric problems.

Using Aitken's Generalized Least-Squares Estimation, demonstrates a useful method for estimating systems of equations with highly correlated distrubance terms. The author uses the residual moment matrix from an equation-by-equation ordinary least-squares regression to obtain an estimate of the true variance-covariance matrix. The study shows that the method cannot reduce the asympotical efficiency. If the independent variables are not highly correlated, the gain in small sample efficiency can be quite large. A test also is presented for aggregation bias. Both the estimation method and the test for aggregation bias are applied to annual investment data for two firms.

072 LESSER, C.E.V. Forms of Engel Functions. Econometrica, 31:694-703, 1963.

Keywords: Functional form, Income elasticity, All expenditures, Household demand, Cross section.

An econometric study of six models used to estimate Engel functions. All models satisfy the additivity criterion and use the same mathematical form for all commodities. The models are "judged" by the size of the coefficient of multiple correlation and by the theoretical implications of the results. The data base consists of expenditure data grouped by size of household, per capita income for Ireland from 1951-57, and budget data for U.S. farm families in 1955. The estimates are compared in 10 broad commodity groupings for the Irish data and 12 groupings for the U.S. data. The conclusion is that a modification of a model introduced by H. Working seems to offer the best results. Working's model implies a decline in demand elasticities with rising income.

073 SUITS, DANIEL B. The Determinants of Consumer Expenditure, A Review of Present Knowledge. In Impacts of Monetary Policy - Commission on Money and Credit, Prentice-Hall, Engelwood Cliffs, N.J., 1963, pp. 1-53.

Keywords: Aggregate demand, Economic theory, Durable expenditures.

A review of theory and research dealing with the aggregate consumption function. The article deals mainly with a survey of studies from Keynes up to the early 1960's. The author suggests that future researchers include the psychology of the consumer and socioeconomic variables in their analysis.

074 BARTEN, A.P. Family Composition, Prices and Expenditure Patterns. Netherlands Reprint Ser., Vol. 95, 1964, pp. 278-292.

Keywords: Economic theory, Equivalent scales.

Presents a model in which household utility and household demand are a function of adult-equivalent scales and other variables. Barten uses a relation analogous to the Slutsky relationship for price changes to derive the welfare effects of changing household composition. He contrasts his model with approaches based on the Sydenstricker and King's model (002). He also refutes Forsythe's (058) argument that both income and specific scales as specified by Prais and Houthakker (039) cannot be estimated. Drawing on the similarity between the effects on the adult-equivalent demand equations of changing household composition and those of changing prices, Barten derives a method of estimating price elasticities from cross-sectional data. This work provides the theoretical foundation for the Blokland and Somermeyer model (106).

075 CRAMER, J.S. Efficient Grouping, Regression and Correlation in Engel Curve Analysis. Jour. of the Amer. Statis. Assoc., 59:233-250, 1964.

Keywords: Econometric problems, Cross section, Food expenditure.

Discusses the effect of grouping observations on the basis of the independent variable on least-squares regression estimates. The conclusion is that if data is grouped on the explanatory variable (usually income), the loss of efficiency is small, the R^2 is much larger, and the estimates are unbiased and highly correlated with the ungrouped estimates.

076 FORD, K.E. and PENNY, N.M. Seasonal Variation in Food Purchases and Costs, The Atlanta Consumer Panel, 1958-62. Univ. of Ga., Ga. Agr. Expt. Sta. Bul. N.S. 114, 1964.

Keywords: Food expenditures, Household demand.

Provides a graphic summary of the quarterly variation in weekly per capita expenditures and quantities for the major classifications of foods purchased by the members of an Atlanta Consumer Panel during 1958-62. The commodities include dairy products, fruits, vegetables, meats, poultry, and eggs.

077 HERRMANN, ROBERT O. Income-Expenditure Elasticities for Food in Households of Differing Size and Composition. Mich. Agr. Expt. Sta. Quart. Bul., Vol 47, 1964, pp. 43-50.

Keywords: Income elasticity, Socioeconomic variables, Cross section.

Estimates income-expenditure elasticities for food of 25 different household types based on eight age-sex classifications. The study concludes that the elasticities were not significantly different and that neither household size nor

state of family life cycle had a significant effect upon the elasticities. The study utilized data from the 1955 U.S. Department of Agriculture Household Food Consumption Survey.

078 IYENGAR, N.S. A Consistent Method of Estimating the Engel Curve from Grouped Survey Data. Econometrica, 32:591-618, 1964.

Keywords: Income elasticity, Econometric problems, Cross section.

Compares the least-squares regression method and the concentration-curve method (see 062) in estimating Engel curves, assuming log normality and using the double-log functional form. Under these assumptions, least squares is shown to give biased results. If the income elasticity is large, the bias becomes significant.

079 HOUTHAKKER, H.S. New Evidence on Demand Elasticities. Econometrica, 33: 277-288, 1965.

Keywords: Econometric problems, Income elasticity, All expenditures, Time series.

Utilizes time series data on total household expenditures in 13 countries and compares the estimates obtained "within countries" and "between countries" to obtain the shortrun and longrun effects of price and income changes. Since the differences are significant, Houthakker concludes that periods of adjustment should be made explicit in studies of demand elasticities. The commodity groupings are food, clothing, rent, durables, and miscellaneous.

080 SAMUELSON, PAUL A. Using Full Duality to Show that Simultaneously Additive Direct and Indirect Utilities Implies Unitary Price Elasticity of Demand. Econometrica, 33:781-801, 1965.

Keywords: Functional form, Economic theory.

Uses the duality relationship of the direct and indirect utility functions to show that a proof about a suitability-limited direct utility function implies a proof about a similarly limited indirect utility function. Specifically, if both are additive, the demand functions all have unitary price elasticities. However, be sure to note Hick's exception to the rule as shown in Econometrica, Vol 37, pp. 353-354.

081 TOMEK, W.G. Changes in Price Elasticities of Demand for Beef, Pork and Broilers. Jour. of Farm Econ., 47:793-802, 1965.

Keywords: Economic theory, Food expenditures, Time series.

Tests the hypothesis that the demand for beef, pork, and broilers in the United States has become less elastic over time. The author estimates two linear regressions, one for 1944-56 and one for 1956-65. The results indicate (with the possible exception of pork) a less elastic demand curve over time. The article suggests several theoretical arguments which have the implication of a less elastic demand for specific food commodities.

082 U.S. Department of Agriculture. Food Consumption of Households in the United States, Spring 1965. Household Food Consumption Rpts. 1-17, Washington, D.C., 1968-73.

Keywords: Data sets, Food expenditures, Socioeconomic variables.

A set of comprehensive tabulations of the income and expenditure data collected by the U.S. Department of Agriculture on household food consumption and expenditures in the spring of 1965. There is no analysis or discussion of the tabulations.

083 BALESTRA, P. and NERLOVE, M. Pooling Cross-Sectional and Time Series Data in the Estimation of a Dynamic Model: The Demand for Natural Gas. Econometrica, 34:585-612, 1968.

Keywords: Econometric problems, Time series, Cross sectional, Aggregate demand.

Estimates the demand for natural gas from a set of observations on 36 States for 1957-62. The assumption is that the demand is technologically related to the stock of appliances. This relationship is handled through a dynamic analysis. A method is presented to estimate the parameters of a dynamic model when the data comes from a set of cross sections over a number of time periods.

084 STONE, R. The Measurement of Consumer's Expenditure and Behavior in the United Kingdom, 1920-1938. Cambridge, Univ. Press, Cambridge, Vol. 2, 1966, 152 pp.

Keywords: Aggregate demand.

Volume II of entry 034, presenting the results for the commodity groups not covered in the first volume. The estimated model was changed to include dynamic factors, but no discussion of this model is included in the study. This work is primarily a compilation of statistical tables.

085 BARTEN, A.P. Maximum Likelihood Estimation of a Complete System of Demand Equations. Center for Operations Research and Econometrics, Universite Cato Lique De Louvain, Discussion Paper No. 6709, 1967, 74 pp.

Keywords: Econometric problems, Economic theory, Time series.

Uses maximum likelihood to estimate the effects of prices and income for a system of demand equations from time series data. The emphasis is on constraining the model by assuming homogeneity in prices and income, symmetry of the variance-covariance matrix, and independence among commodities. The article demonstrates the power of maximum likelihood estimating techniques as a constrained estimation procedure.

086 GOLDBERGER. A.S. Functional Form and Utility: A Review of Consumer Demand Theory. Systems Formulation Methodology and Policy Workshop Paper 6703, Social Systems Res. Inst., Univ. of Wis., 1967, 122 pp.

Keywords: Functional form, Econometric problems, Economic theory.

A review (in matrix notation) of the implications of consumer demand theory with respect to all functional forms. The article discusses in detail Stone's linear expenditure model, the quadratic utiltiy function, the direct addilog utility function, the indirect addilog utility function, Powell's model of additive preferences, and the Rotterdam School demand models. The emphasis is on the power of classical theory to constrain the model and thus reduce the number of parameters to be estimated. Goldberger does not estimate any of the models.

087 GOLDBERGER, A.S., and GAMALETSON, T. A Cross-Country Comparison of Consumer Expenditure Patterns. Systems Formulation Methodology and Policy Workshop Paper 6706, Social Systems Res. Inst. Reprint Ser. 226, Univ. of Wis., 1967, 43 pp.

Keywords: Functional form, Econometric problems, Economic theory, Time series, Aggregate demand.

Estimates complete demand systems for the 13 member countries of the OECD by using the constant elasticity model developed by Houthakker in (079) and the Stone linear expenditure system. A comparison of the results shows that the linear expenditure system requires fewer estimated parameters but generally results in lower R^2 and greater mean squared errors in prediction. The authors conclude that neither model satisfactorily explains relative budget shares. Based upon classical utility theory and ease of interpretation, the authors express a preference for the linear expenditure system.

088 HERRMANN, ROBERT O. Interaction Effects and the Analysis of Household Food Expenditures. Jour. of Farm Econ., 49(4):821-8:32, 1967.

Keywords: Econometric problems, Socioeconomic variables, Functional form.

Demonstrates a procedure to detect interactions among independent variables to identify the impacts of various socioeconomic explanatory variables on food expenditures. The most important variables were shown to be income, household size, and urbanization. The procedure is a useful preliminary to regression analysis.

089 PRICE, DAVID W. Specifying the Effects of Household Composition on U.S. Food Expenditures. Mich. Agr. Expt. Sta. Res. Bul., Vol. 16, 1967, 74 pp.

Keywords: Food expenditures, Equivalent scales, Income elasticity, Household demand, Cross section.

Estimates the specific effects of adult-equivalent expenditures on food by using the double-log expenditure system and grouping data into 13 sets according to household age-sex composition. The author estimates a different income elasticity for each household type and adds a variable to account for meals eaten away from home. He obtains the specific scales by first assuming an income scale. Sex differences are only considered important for individuals 14 years of age or older. He uses the 1955 U.S. Department of Agriculture Food Consumption Survey for the data base and estimates the model for nine expenditure categories.

090 PURCELL, J.C. and FAUNIKAR, ROBERT. Quantity Income Elasticities for Foods by Level of Income. Jour. of Farm Econ., 49:1410-1414, 1967.

Keywords: Income elasticity, Aggregate demand.

Uses data on 1,346 households in Atlanta to show that the assumption of constant income elasticity for food commodities across different income levels is unreasonable. The data base is 1958-62.

091 THEIL, H. Economics and Information Theory. North Holland Publishing Company, Amsterdam, 1967, 488 pp.

Keywords: Economic theory, Econometric problems.

Employs the concept that average budget shares are mathematically equivalent to probabilities. The author applies a part of probability theory--information theory--to areas of consumer demand, including the problems of consumer allocation and index theory. This study is an example of an application from another field (engineering) to economics.

092 WATTS, H.W. The Iso-Prop Index: An Approach to the Determination of Differential Poverty Income Thresholds. The Jour. of Human Resources, II (1):1-18, Winter 1967.

Keywords: Functional form, Income elasticity, Socioeconomic variables, Cross section.

Uses the 1960 Bureau of Labor Statistics Survey of Consumer Expenditures to develop an index which permits comparisons across family incomes for welfare purposes (such as for poverty levels) regardless of location or of composition differences of the family. The index, based on a variation of Engel's Law, assumes that the share of income devoted to food or some other necessity determines the poverty level of the family. The study also discusses alternative forms of Engel curves.

093 BURK, MARGUERITE C. Consumption Economics, John Wiley & Sons, New York, 1968, 359 pp.

Keywords: Economic theory, Socioeconomic variables.

Emphasizes the multidisciplinary nature of consumption economics. Basically an intermediate textbook, it includes a discussion of marketing, psychology, anthropology, and other social sciences. The study also examines consumption economics abroad as well as in the United States and discusses both the micro- and macro-aspects of consumption.

094 GOODWIN, J.W., ANDORN, R., and MARTIN, J.E. The Irreversible Demand Function for Beef. Okla. Agr. Expt. Sta. Tech. Bul., Vol. T-127, 1968.

Keywords: Econometric problems, Economic theory, Aggregate demand, Time series.

Uses a distributed lag model to test the concept of an irreversible demand function for beef. The authors estimate the aggregate demand for beef by assuming a lagged response to the beef cycle. The results support the concept that responses are different for price increases and price decreases. The data are based on U.S. Department of Agriculture sources during 1947-65.

095 HEIMSTRA, S.J. Food Consumption, Prices and Expenditures. Agr. Econ. Rpt. 138, U.S. Dept. Agr., 1968, 193 pp.

Keywords: Aggregate demand, Food expenditures, Data sets, Time series.

A detailed description of U.S. food consumption, prices, and expenditures, using time series data from 1909 to 1968. The study discusses a dozen food commodities with respect to per capita and total consumption. It contains a comprehensive set of 118 tables on annual and quarterly consumption and expenditures and prices of the various food commodities over the period. It also examines some of the interrelationships between these economic variables and changes in income and population. In the analysis, a log function is assumed.

096 JACKSON, C.A. Revised Equivalence Scales for Estimating Equivalent Incomes or Budget Costs by Family Type. U.S. Dept. of Labor Bul., Vol. 1570-2, 1968, 23 pp.

Keywords: Equivalent scales, Food expenditures.

Utilizes the 1960-61 Bureau of Labor Statistics Survey of Consumer Expenditures to estimate equivalent expenditures of households for food on the basis of age of household head and number and age of oldest child. The author uses a log-linear regression on food expenditure relationships for each of 23 groups. He assumes income elasticities for food expenditure of 1/2 and 2/3 and does not account for individual characteristics or sex. The bulletin contains an annotated bibliography of 27 references of scale estimations and a brief synopsis of past research on scale estimations.

097 KATONA, G. On the Function of Behavioral Theory and Behavioral Research in Economics. Amer. Econ. Rev., 58:140-150, March 1968.

Keywords: Economic theory.

Uses four examples from consumption economics to present an argument for integrating principles of social learning and expectational dynamics into consumer demand theory.

098 KATONA, G. Consumer Behavior: Theory and Findings on Expectations and Aspirations. Amer. Econ. Rev., 58:19-30, May 1968.

Keywords: Economic theory, Durable expenditures, Time series.

Postulates a theory of consumer demand based on aspirations which, in turn, are a function of habit and past achievements. A basic conclusion of the theory is that the consumer's wants change as his income changes; hence, satiation is not possible. The theory is tested by predicting changes in consumer demand for durable goods. Although the results seem reasonable in predicting a 6- to 9-

month period, not enough information is presented to draw any longrun conclusions. The data are time series from the Bureau of Labor Statistics Survey of Consumer Finances, 1952-66.

099 UVACEK, E., JR. A New Look at Demand Analysis for Beef. Amer. Jour. of Agr. Econ., 50:1501-1506, 1968.

Keywords: Aggregate demand, Socioeconomic variables, Time series.

Uses multiple regression analysis to determine the effects of the production cycle and income changes on the demand for beef. The author concludes that since 1950, the interdependence of beef and consumer income has lessened and suggests that, in the future, projections of demand should take into account the production cycle.

100 PARKS, R.W. Systems of Demand Equations: An Empirical Comparison of Alternative Functional Forms. Econometrica, 37:629-650, 1969.

Keywords: Econometric problems, Functional form, Time series, Aggregate demand.

A comparison of three functional forms: the Rotterdam differential demand model, the indirect addilog model, and the linear expenditure demand model. Using time series data for Sweden from 1861 to 1955, the study provides a workable method of estimating the system of demand equations derived from the indirect addilog model. The three models were judged on the basis of the coefficients of multiple determination and the information inaccuracy of their estimates. Although the results were somewhat mixed, the Rotterdam model generally performed the best, while the indirect addilog performed the worst. The defined commodity groups are aggregate sectors of the economy such as agriculture, transportation, and commerce.

101 POLLOCK, R.A., AND WALES, T.J. Estimation of the Linear Expenditure System. Econometrica, 37:611-628, 1969.

Keywords: Econometric problems, Functional form, Economic theory, Aggregate demand, Time series.

Uses the Klein-Rubin linear expenditure model on U.S. time series data from 1948 to 1965 to present a maximum likelihood estimating procedure utilizing various dynamic and habit formation specifications. The conclusions drawn from the study are that while the error specification seemed not to affect the estimates, the dynamic specifications and estimation procedures were very critical to the estimates. The commodities were classified as food, clothing, shelter, and other.

102 PRICE, DAVID W. The Effects of Household Composition on Income Elasticities of Food Commodities. Wash. Agr. Expt. Sta. Tech. Bul., Vol. 63, 1969, 9 pp.

Keywords: Income elasticity, Equivalent scales, Food expenditures, Household demand, Cross section.

Uses the double-log expenditure model to show that after removing the effects of income on expenditure, the income elasticities of food commodities increase with the number of children in the household and change throughout the household life cycle. The model allows income elasticities to vary over income levels and accounts for meals eaten away from home. Estimated adult-equivalent scales are used in the analysis. The data are from the 1955 U.S. Department of Agriculture Household Food Consumption Survey. The food commodities are grouped into six expenditure categories.

103 RAUNIKAR, ROBERT, PURCELL, J.C., and FORD, K.E. Spatial and Temporal Aspects of the Demand for Food in the United States, II, Beef. Univ. of Ga., Agr. Expt. Sta. Res. Bul., Vol. 63, 1969, 42 pp.

Keywords: Socioeconomic variables, Aggregate demand.

Estimates the aggregate and per capita demand for beef for several different market regions in the United States. Data are adjusted for household age composition, income, and race. Projected demand estimates are made for 1980 for the same regions on the basis of estimates in the growth of population, income, and urbanization. The number of regions vary from 14 to 204. The data are generated from a local consumer panel in Atlanta during 1958-62.

104 STAFFORD, F.P. Student Family Size in Relation to Current and Expected Income. Jour. of Polit. Econ., 77:471-478, 1969.

Keywords: Socioeconomic variables.

Relates size of family to current and expected income, wife's income, major field, total assets, years married, and age for male graduate students. The results indicate that, in general, current income, expected income, years married, and total assets were significant and had a positive effect on family size and that wife's income was significant but had a negative effect. It was assumed that families had access to birth control procedures.

105 RAUNIKAR, ROBERT, PURCELL, J.C., and ELROD, J.C. Spatial and Temporal Aspects of the Demand for Food in the United States, I. Fluid Milk. Univ. of Ga., Agr. Expt. Sta. Res. Bul. 61, 1969, 44 pp.

Keywords: Socioeconomic variables, Aggregate demand.

Estimates the aggregate and per capita demand for fluid milk for several different market regions in the United States. Data are adjusted for household age composition, income, and race. Demand is estimated for 1980 for the same market regions on the basis of estimates in the growth of population, income, and urbanization. The number of regions vary from 14 to 204. The basic demand relations and parameters were generated from a local consumer panel in Atlanta during 1958-62.

106 BLOKLAND, J., and SOMERMEYER, W.H. Effects of Family Size and Composition on Family Expenditure According to an Allocation Model. Report 7020, Netherlands School of Econ., Econometric Inst., 1970, 68 pp.

Keywords: Equivalent scale, Economic theory, Cross section, All expenditures, Food expenditures.

Develops a model by specifying utility in terms of households rather than individuals and by including adult-equivalent scales in the utility function. The adult-equivalent scales are specified for each sex as continuous cubic functions of age. The authors have difficulty in estimating the nonlinear system because the iterative application of linear least squares did not converge. The data are from the 1935-36 household expenditure survey of the Netherlands. The commodities are grouped into food, housing expenditures, and other. The food category is then classified into grain products, vegetables, fruits, dairy products, meat, fish, and other. This is a pioneering work in that it applies a different method to estimate adult-equivalent scales.

107 HARMSTON, F.K. and HINO, H. An Intertemporal Analysis of the Nature of Demand for Food Products. Amer. Jour. of Agr. Econ., 52:381-386, 1970.

Keywords: Functional form, Socioeconomic variables, Food expenditures, Cross section, Household demand, Income elasticity.

Estimates Engel curves for 36 food commodity groupings by using a natural log polynomial function and a variable added linearly to account for effects of household size. On the basis of the differences in income elasticities and differences in how the elasticities change as income changes, the authors deduce changes in food tastes for 36 commodities. The article concludes that taste is highly variable, that it is different for different kinds of foods, and that differences in taste based on income differences are decreasing over time. The data base is the 1955 and 1965 U.S. Department of Agriculture Household Food Consumption Surveys.

108 HOUTHAKKER, H.S. and TAYLOR, L.D. Consumer Demand in the United States, 1920-1970. Harvard Univ. Press, Cambridge, Mass., 1970, 321 pp.

Keywords: Econometric problems, Time series, Aggregate demand, Economic theory, All expenditures.

Presents a dynamic model of demand. The data include 80 consumption categories from a U.S. time series compiled by the U.S. Department of Commerce for 1920-65. The model allows the effects of price and income changes to occur over long periods of time rather than instantaneously. It also includes a variable to account for the effect of habits on consumption. The results are compared with similar studies in Canada, Sweden, and the Netherlands, and with cross-sectional studies. The comparisons show that the autocorrelation problems in time series might not be as critical as is ordinarily assumed, that habit formation in the United States is more important than inventory or prices in explaining consumption, and that the importance of habit formation in explaining consumption might vary directly with income. The study also projects personal consumption expenditure to 1975. This is an important study in exploring new ways of handling time series data and in reconciling the results with cross-sectional studies.

109 LAU, L.J. Duality and the Structure of Utility Functions. Jour. of Econ. Theory, 1:374-396, 1969.

Keywords: Functional form, Economic theory.

Mathematically relates the direct and indirect utility function through the duality relations by a series of theorems employing the concepts of homogeneity, homothanosity, separability, and additivity. The author then considers the theoretical impacts of these theorems and concepts on the demand equations.

110 NYBERG, A.J. The Demand for Lauric Oils in the United States. Amer. Jour. of Agr. Econ., 52:97-107, 1970.

Keywords: Econometric problems, Income elasticity, Aggregate demand, Time series.

Estimates a double-log demand equation for lauric oil by ordinary least squares (OLS) and two-stage least squares (2SLS) to obtain the shortrun elasticities. The author utilizes a time lag to estimate the longrun elasticities. A comparison of OLS and 2SLS estimates is given. The article concludes with estimates of a price elasticity of -0.02 and an income elasticity of 0.06.

111 PRICE, DAVID W. Unit Equivalent Scales for Specific Food Commodities. Amer. Jour. of Agr. Econ., 52:224-233, 1970.

Keywords: Household demand, Equivalent scales, Income elasticity, Aggregate demand, Food expenditures, Cross section.

Estimates equivalent consumption scales for five specific food groups by assuming an income scale and extending Prais and Houthakker's (039) model to permit income elasticities to vary over households. Age is included as a discrete variable, and for children under the age of 15, the scale is the same for both sexes. The author uses his results to project national food requirements. The 1955 U.S. Department of Agriculture Household Food Consumption Survey is the data base for the study.

112 RIZEK, R.L., and ROCKWELL, JR., G.R. Household Consumption Patterns for Meat and Poultry, Spring 1965. Agr. Econ. Rpt., U.S. Dept. Agr., Vol. 173, 1970, 32 pp.

Keywords: Household demand, Cross sectional, Socioeconomic variables.

Compares the change in consumption patterns of households for meat and poultry from 1955 to 1965. The study also discusses consumption patterns as they are affected by region, urbanization, farm and nonfarm status, income class, and commodity prices. The data are based on the U.S. Department of Agriculture Household Food Consumption Surveys.

113 GEORGE, P.S., and KING, G.A. Consumer Demand for Food Commodities in the United States with Projections for 1980. Giannini Found. Monog. No. 26, March 1971, 161 pp.

Keywords: Economic theory, Income elasticities, Time Series, Aggregate demand, Food expenditures, Socioeconomic variables.

Expands on the work done by Brandow (064). The authors use the U.S. Department of Agriculture Household Food Consumption Surveys of 1955 and 1965 to estimate and analyze the demand interrelationships for 49 food commodities which are classified into 15 groups. In the analysis, the authors account for effects of grouping observations, household size, regional variations in the income-consumption relationship, and use of quantity and expenditures as the dependent variable. Projections of per capita consumption in 1980 were developed for both individual commodities and group aggregates.

114 LEE, F., and PHILLIPS, K.E. Differences in Consumption Patterns of Farm and Non-Farm Households in the United States. Amer. Jour. of Agr. Econ., 53:573-582, 1971.

Keywords: Household demand, All expenditures, Income elasticity, Socioeconomic variables, Time series.

Uses ordinary least squares and two-stage least squares to estimate Engel curves for 14 categories of household expenditures by employing the 1960-61 Bureau of Labor Statistics Survey of Consumer Expenditures. The authors compare consumption patterns of urban, rural farm, and rural nonfarm households in the Northeast, North-Central, South, and West regions of the United States. Their results indicate that differences in patterns exist for farm and nonfarm households for the United States as a whole, but that the differences are not as marked on a regional basis.

115 SENECA, J.J., and TAUSSIG, M.K. Family Equivalence Scales and Personal Income Tax Exemptions for Children. The Rev. of Econ. and Statis., 53:253-262, 1971.

Keywords: Economic theory, Socioeconomic variables, Income elasticities.

Uses the 1960-61 Bureau of Labor Statistics Survey of Consumer Expenditures and a quadratic form of the Engel curve to estimate income elasticities for food and nonfood expenditures for six different household sizes. The results are used to develop two sets of scales showing costs of children at different levels of income. These scales are then compared with the income tax exemptions allowed by the Internal Revenue Service.

116 THEIL, H. Introduction to Demand and Index Number Theory. Univ. of Chicago Rpt., Vol. 7126, 1971, 178 pp.

Keywords: Functional form, Econometric problems, Economic theory.

A theoretical presentation of systems of consumer-demand equations. For illustrative purposes, the author uses the Klein-Rubin and the quadratic utility functions. The manuscript also features a separation of the specific and general substitution effects, a theory of second moments of the disturbances of demand equations, an index number theory directly related to demand theory (information theory approach), and a model to aggregate individual demand equations to ob-

tain market demand equations. The report approaches these concepts from the viewpoint of available estimating procedures.

117 JANVRY, A., BIERI, J. and NUÑEZ, A. Estimation of Demand Parameters under Consumer Budgeting: An Application to Argentina. Amer. Jour. of Agr. Econ., 54:422-430, 1972.

Keywords: Household demand, All expenditures, Food expenditures, Cross section.

Assumes separable utility for groups of commodities. The authors estimate the demand for all items in the food groups and the cross-price elasticities of the food items for all other groups. The data are from a 1963 Cross-Section Argentine Consumption Survey.

118 LAI, L.K. The Estimation of Effects of Expected Family Income and Socio-Economic Variables on the United States Household Consumption of Food Commodity Groups. Unpublished Ph.D. dissertation, Univ. of Wis., Madison, 1972, 308 pp.

Keywords: Household demand, All expenditures, Food expenditures, Cross section, Income elasticity, Socioeconomic variables.

A model of U.S. household food consumption which includes expected family income, household size, location, urbanization, education, occupation, tenure, and income change. The author uses a linear form of the household Engel curve to estimate the model with data from the 1955 U.S. Department of Agriculture Household Food Consumption Survey. The socioeconomic variables are represented by binary variables in the Engel curves. The conclusions are that the linear form is a satisfactory representation of the Engel curve, the permanent income hypothesis is a necessary specification of Engel curves, socioeconomic variables add critical explanatory power to the model, and the socioeconomic variables of household size and region have the strongest influences on food consumption.

119 PETERSON, H.P. Estimating the Influence of Household Composition on Household Food Expenditures by Adult-Equivalent Scales for Households in the United States in 1955 and 1965. Unpublished Ph.D. dissertation, Univ. of Wis., Madison, 1972, 225 pp.

Keywords: Household demand, All expenditures, Cross section, Income elasticity, Equivalent scales, Econometric problems.

Expands the model (derived by Blokland and Somermeyer (106)) to estimate adult-equivalent scales by introducing welfare concepts and a statistical evaluation of the importance of Household Composition. The model is estimated by utilizing Parks (100) transformation and a nonlinear generalized least-squares procedure. The data are from the U.S. Department of Agriculture Household Food Consumption Surveys of 1955 and 1965. The estimated scales are for six food categories and one residual group which closes out expenditures. Based on these estimates, Peterson concludes that this procedure is superior to the Prais and Houthakker (039) procedure and that age and sex of household members affect household expenditures. He suggests several ways to expand the model by using different forms of utility and including other socioeconomic variables.

120 DADD, C.M. Estimating the Influence of Household Size and Composition on Consumption Patterns by Adult-Equivalent Scales for Urban Households in Brazil, 1960-1970. Unpublished Ph.D. dissertation, Univ. of Wis., Madison, 1973, 205 pp.

Keywords: Household demand, All expenditures, Cross section, Income elasticity, Equivalent scales, Econometric problems.

Uses the procedure described in (119) to estimate adult-equivalent scales for 14 groups of expenditures. The author concludes that while in general the scale estimates are reasonable and stable over time, they do not explain all of the observed variations in household expenditures. The study is based on three cross-sectional surveys taken in Brazil in 1960, 1965, and 1970.

121 SINGH, B., and NAGAR, A.L. Determination of Consumer Unit Scales. Econometrica, 41:347-355, 1973.

Keywords: Household demand, All expenditures, Cross section, Equivalent scales.

Develops an iterative procedure for estimating specific and income consumer unit scales based on a modification of the Prais and Houthakker (039) method. The procedure uses the Indian National Survey Sample for 20 expenditure categories. The data are divided into a rural sector and an urban sector.